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A NEW SUBSPECIES OF *DIGLOSSA GLORIOSISSIMA* (AVES: THRAUPINAE) FROM THE WESTERN ANDES OF COLOMBIA

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Abstract.—A new subspecies of flower-piercer, *Diglossa gloriosissima boylei,* is described from two localities at the northern end of the Western Cordillera of the Colombian Andes in the Department of Antioquia. The nominate race is apparently restricted to the highest part of the Western Cordillera west of Popayán, Department of Cauca.

The Chestnut-bellied Flower-Piercer, *Diglossa gloriosissima* (Chapman 1912), an allospecies of the *Diglossa lafresnayii* superspecies (Vuilleumier 1969), is known from only three isolated páramos in the Western Cordillera of the Colombian Andes (Hilty & Brown 1986) (Fig. 1). Specimens are scarce in collections and those reported in the literature were collected on two expeditions sponsored by the American Museum of Natural History (AMNH) in the early part of this century. Leo E. Miller and W. B. Richardson collected the type series of ten specimens (six adults) in July 1911 on the crest of the coast range west of Popayán (Chapman 1912), and Miller and Howarth Boyle collected a series some 500 km north of that locale on Cerro Paramillo in January 1915 (Chapman 1917, Zimmer 1929). The species was discovered at a third locality in August 1951 by Melbourne A. Carriker, Jr., who collected a series of six adults on Páramo Frontino for the National Museum of Natural History (USNM), Smithsonian Institution.

In a systematic review of the *D. lafresnayii* superspecies, Zimmer (1929:30) noted that, "specimens of *gloriosissima* from the western Andes near Popayan show considerable black along the flanks, and in this respect approach closer to *lafresnayii* than do birds from Paramillo. . . ." Contrary to his penchant for attaching subspecific names to the most subtly marked populations, Zimmer declined to designate the specimens from Cerro Paramillo as a new subspecies.

With the exception of the type, the adult specimens from Popayán were dispersed to other museums soon after Chapman's description of the species. I was able to examine three of these, most of the adults from Páramo Paramillo, and all of Carriker's specimens from Páramo Frontino. My analyses confirm Zimmer's observations and indicate that the northern populations from Páramo Frontino and Cerro Paramillo represent an undescribed subspecies.

Materials and methods.—Measurements of wing chord, tail from point of insertion of central rectrices to tip of longest rectrix, tarsus, and bill from anterior edge of nostril, were taken with digital calipers (Table 1). Wing and tail measurements were rounded to the nearest millimeter, those of tarsus and bill to the nearest 0.1 mm. T-tests were performed on untransformed data with SYSTAT software.

Diglossa gloriosissima boylei, new subspecies

Holotype.—National Museum of Natural History, Smithsonian Institution (USNM) No. 436792; male in adult plumage from Páramo Frontino, 11,850 ft (ca. 3613 m),

Department of Antioquia, Colombia, collected 25 Aug 1951 by Melbourne A. Carriker, Jr. (original number 21013).

Diagnosis.—*Diglossa gloriosissima boylei* differs from *D. g. gloriosissima* in having uniformly chestnut flanks, sides, and undertail coverts, these regions in *D. g. gloriosissima* being sooty black or chestnut with black markings and spots.

Measurements of Holotype (mm).—Wing (chord) 68; tail 60; tarsus 22.9; bill 10.5.

Geographic range.—As far as known, restricted to elfin forest at timberline and patches of shrubbery in páramo on Páramo Frontino and Cerro Paramillo, Department of Antioquia, Colombia.

Specimens examined.—*Diglossa g. gloriosissima*: Coast range west of Popayán, Department of Cauca (AMNH Holotype, ♂; USNM ♂; FMNH ♂; MCZ ♂). *D. g. boylei*: Páramo Frontino, Department of Antioquia (USNM including Holotype, 6 ♂♂); Cerro Paramillo (AMNH 4 ♂♂, 2 ♀♀; USNM 1 ♂; MCZ ♂). Specimens of *D. gloriosissima* were compared directly with series of all named taxa of the *D. lafresnayii* (Vuilleumier 1969) and *D. carbonaria* superspecies (Graves 1982).

Etymology.—I am pleased to name this flower-piercer for Howarth S. Boyle, who with Leo Miller, made the first collections of *D. glorisissima boylei.*

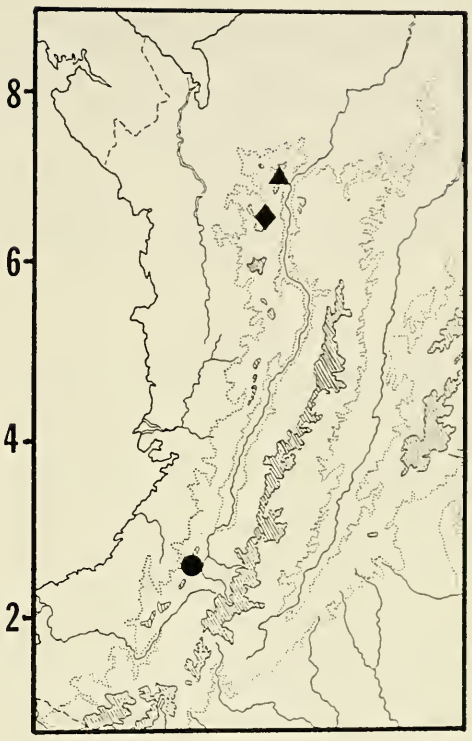

Fig. 1. Distribution of specimens of *D. gloriosissima* examined in this study from the Western Cordillera of the Colombian Andes. *D. g. gloriosissima*: W. Popayán (circle). *D. g. boylei*: Páramo Frontino (diamond); Cerro Paramillo (triangle). Degrees of north latitude are labeled along the y-axis. Dotted lines outline the 1000 m contour interval. Hatching indicates areas above 3000 m elevation.

Table 1.—Ranges and means of measurements (mm) of *Diglossa gloriosissima.*

Subspecies	Sex	*n*	Wing chord	Tail	Tarsus	Bill
D. g. gloriosissima						
W Popayán	♂♂	4	74–77 $\bar{X}$ = 75.3	64–67 $\bar{X}$ = 65.3	24.0–24.9 $\bar{X}$ = 24.5	9.2–9.8 $\bar{X}$ = 9.4
D. g. boylei						
Páramo Frontino	♂♂	6	68–71 $\bar{X}$ = 69.7	59–63 $\bar{X}$ = 60.2	22.9–24.3 $\bar{X}$ = 23.7	9.5–10.5 $\bar{X}$ = 9.8
Cerro Paramillo	♂♂	6	71–75 $\bar{X}$ = 72.7	64–65 $\bar{X}$ = 64.6	23.5–24.6 $\bar{X}$ = 24.2	9.9–10.7 $\bar{X}$ = 10.1
	♀♀	2	69–70	63	22.5–23.9	10.3–10.4

Table 2.—One-tailed *t*-tests of character means of male population samples of *Diglossa gloriosissima* (see Table 1). Significant *t* values, adjusted for the number of simultaneous tests ($P = 0.05/12 = 0.004$), are indicated by *.

Population contrasts			Wing chord	Tail	Tarsus	Bill
Popayán	versus	Páramo Frontino	5.00*	4.84*	2.52	1.70
Popayán	versus	Cerro Paramillo	2.35	1.06	1.10	3.58
Páramo Frontino	versus	Cerro Paramillo	3.80*	6.04*	1.83	1.45

Results

There appear to be significant size differences among populations of *D. gloriosissima,* with specimens from Páramo Frontino, geographically interposed between Popayán and Cerro Paramillo, having shorter wings and tails than those from the other localities (Table 2). Because intraspecific size variation in birds may reflect environmental induction as well as genetic differentiation (James 1983), it is deemed unwise to recognize these differences nomenclaturally. Moreover, significant geographic size variation occurs within several subspecies of *Diglossa carbonaria* that exhibit little or no variation in plumage color and pattern. In these cases, I consider size as a taxonomically unreliable character. On the other hand, qualitative plumage differences, such as those expressed among populations of *D. gloriosissima,* are thought to be genetically determined.

The avifauna of the Western Cordillera is poorly known relative to other parts of the Colombian Andes. As an example, Hilty & Brown (1983) documented 63 major range extensions of species in the Western Cordillera based on previously unreported material collected by Carriker in the 1940's and 1950's. Although populations of *D. gloriosissima* and other taxa now restricted to Cerro Paramillo and Páramo Frontino (e.g., *Coeligena orina, Metallura williami recisa*) may occur on several of the ornithologically unexplored peaks between Popayán and Páramo Frontino, the insular nature of habitat above 3000 m elevation suggests that gene flow among populations of *D. gloriosissima* has been drastically reduced since the Wisconsinan glacial (Graves 1980).

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